
PLENARY MEETING

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Note by the Secretary-General

I have the honour to bring to the attention of the conference, at the request of the Director, Radiocommunication Bureau, the Report by the Radio Regulations Board to WRC-12, Resolution 80 (Rev.WRC-07).

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Secretary-General

Annex: 1

ANNEX

Report by the Radio Regulations Board to WRC-12
Resolution 80 (Rev.WRC-07)

Executive summary

The Board has addressed Resolution 80 (Rev.WRC-07), *Due Diligence in Applying the Principles Embodied in the Constitution*, at three world radiocommunication conferences since its adoption at WRC-97. In this report to WRC-12, the Board focused its efforts on new concepts to address issues the Board and the Bureau had faced since WRC-07 affecting fulfilment of the principles contained in Article 44 of the Constitution and No. 0.3 of the Preamble to the Radio Regulations. Chief among these concepts are the application of No. 13.6 of the Radio Regulations, the status of assignments involved in certain unresolved harmful interference situations, difficulties experienced in satellite network coordination, and considerations on satellite leasing. To the extent possible, the Board provides recommendations and draft revisions to the provisions of the Radio Regulations enhancing the linkage between the notification, coordination, and registration procedures and the basic principles concerning the use of the radio frequency spectrum and satellite orbits. It is hoped that the administrations find this work useful in addressing the various issues at WRC-12, particularly those involving satellite networks.

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RESOLUTION 80 (REV.WRC-07)

Report by the Radio Regulations Board to WRC-12 20 June 2011

1 Introduction

Resolution 80, *Due Diligence in Applying the Principles Embodied in the Constitution*, was first adopted by WRC-97 and subsequently revised by WRC-2000 and WRC-07. Each version of Resolution 80 has instructed the Radio Regulations Board (RRB) either to develop Rules of Procedure (ROPs), conduct studies, or consider and review possible draft recommendations related to linking the principles contained in No. 0.3 of the Preamble to the Radio Regulations to the notification, coordination and registration procedures in the Radio Regulations and to report to a subsequent WRC. In the case of Resolution 80 (Rev.WRC-07), these linkages were extended to include the principles contained in Article 44 of the Constitution.

The RRB reported the results of its studies to WRC-2000 and WRC-03 in Documents 29 (<http://www.itu.int/itudocr/itu-r/archives/wrc/wrc-2000/docs/1-99/29.pdf>) and 4 Addendum 5 (<http://www.itu.int/md/R03-WRC03-C-0004/en>) respectively. Both conferences noted these reports, but took no related action. The annexes to Resolution 80 (Rev.WRC-07) now contain some of the concepts reflected in the Board's reports to these two conferences. The Board was not instructed to report to WRC-07 on this matter.

Throughout its existence, Resolution 80 has related to the use of the radio-frequency spectrum and satellite orbits. Resolution 80 (Rev.WRC-07) applies to space and terrestrial services, with the exception of those aspects specifically addressing orbits, satellites, or satellite networks that apply exclusively to space services.

2 Approach

The Board formed a working group on Resolution 80 (Rev.WRC-07) under the chairmanship of Ms. Zoller at its 45th meeting (3-7 December 2007). Recalling that the WRC-07 Financial Committee was not in a position to provide any estimates regarding the potential financial consequences that would result from the implementation of Resolution 80 (Rev.WRC-07) and considered it pertinent to request the RRB to analyse the potential financial implications that could arise from the implementation of *resolves 2* of this resolution, the Board examined its overall workload. It was decided to use all available means to complete the work during the regularly scheduled RRB meetings (anticipated to be three meetings per year of five days each) and, if necessary, add meeting time to satisfy its responsibilities. Minimal progress on Resolution 80 (Rev.WRC-07) was possible because of the heavy workload involving time-sensitive matters; therefore, one additional working day was scheduled at the 54th meeting to draft the Board's preliminary report on Resolution 80 (Rev.WRC-07) to WRC-12 and another additional work day was scheduled at the 57th meeting to complete the report. It is beyond the capability of the Board to determine the possible financial consequences of any changes to the procedures for notification, coordination and registration as a result of implementing the recommendations set forth in this report.

The Bureau issued two circular letters inviting contributions to the Board's work on Resolution 80 (Rev.WRC-07). CR/279, concerning the implementation of decisions of the World Radiocommunication Conference, Geneva, 2007 (WRC-07) and associated transitional arrangements that entered into force on 17 November 2007, recalled that WRC-07 invited

administrations to contribute to the studies on Resolution 80 (Rev.WRC-07) and to the work of the RRB in this respect, noting the membership may wish to embark as early as possible and to submit relevant contributions to the RRB. In CR/300, the Board again recognized that the work would be enhanced by inputs from administrations and from the studies to be performed under *resolves* 1 of Resolution 80 (Rev.WRC-07) and repeated the invitation to administrations to contribute as early as possible to these studies and to submit relevant contributions to the Board. To date, no contributions have been received since WRC-07.

The Board instructed the Radiocommunication Bureau (BR) to include, in the Report of the Director to each Board meeting, relevant information on related ITU-R activities such as the BR workshops on the efficient use of the spectrum/orbit resource and developments in the Radiocommunication Advisory Group and ITU-R Working Parties. Initiatives on the part of the BR to increase the accuracy of the Master International Frequency Register (MIFR) were also included in the Director's Report to the Board and considered. In Circular letter CR/301, dated 1 May 2009, the BR urged administrations to cooperate in efforts "that employ the scrupulous and diligent application of the principles and provisions of the Constitution, Convention, and Radio Regulations" and review the use of their recorded satellite networks, encouraging them to remove any unused frequency assignments or networks from the MIFR. The BR also applied the Radio Regulations (e.g., No. 13.6) in order to remove unused frequency assignments from the MIFR, initiating surveys of the C, Ku, and Ka bands. A number of networks were deleted from the MIFR as a result of this initiative, some of which had to be confirmed by the RRB in accordance with the Radio Regulations.

The Board decided to focus its efforts on new concepts to address issues the Board and the Bureau had faced since WRC-07 rather than reconsider previous reports by the Board or options under discussion elsewhere in the ITU-R. Chief among these concepts are the application of No. 13.6 of the Radio Regulations, the status of assignments involved in certain unresolved harmful interference situations, difficulties experienced in satellite network coordination and notification, and considerations on satellite leasing.

3 The Board's mandate under *resolves* 2 of Resolution 80 (Rev.WRC-07)

Resolves 2 of Resolution 80 (Rev.WRC-07) includes the following instruction to the RRB:

2 to instruct the RRB to consider and review possible draft recommendations and draft provisions linking the formal notification, coordination and registration procedures with the principles contained in Article 44 of the Constitution and No. 0.3 of the Preamble to the Radio Regulations, and to report to each future World Radiocommunication Conference with regard to this Resolution;

The Board concluded that the formal notification, coordination and registration procedures referred to in *resolves* 2 of Resolution 80 (Rev.WRC-07) primarily involve Articles 9 and 11 and Appendices 4, 5, 30, 30A, and 30B of the Radio Regulations and Resolution 49 (Rev.WRC-07) and that all of the principles contained in Article 44 of the Constitution and No. 0.3 of the Preamble to the Radio Regulations were to be considered.

Article 44 of the Constitution, Use of the Radio-Frequency Spectrum and of the Geostationary-Satellite and Other Satellite Orbits, contains the following two provisions:

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PP-02

1 Member States shall endeavour to limit the number of frequencies and the spectrum used to the minimum essential to provide in a satisfactory manner the necessary services. To that end, they shall endeavour to apply the latest technical advances as soon as possible.

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PP-98

2 In using frequency bands for radio services, Member States shall bear in mind that radio frequencies and any associated orbits, including the geostationary-satellite orbit, are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries may have equitable access to those orbits and frequencies, taking into account the special needs of the developing countries and the geographical situation of particular countries.

No. 0.3 of the Preamble to the Radio Regulations states the following:

In using frequency bands for radio services, Members shall bear in mind that radio frequencies and the geostationary-satellite orbit are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of these Regulations, so that countries or groups of countries may have equitable access to both, taking into account the special needs of the developing countries and the geographical situation of particular countries (No. 196 of the Constitution).

According to CS 78, the functions the Radiocommunication Sector include “ensuring the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including those using the geostationary-satellite or other satellite orbits, subject to the provisions of Article 44 of this Constitution.” These functions are accomplished through the World and Regional Radiocommunication Conferences, ITU-R Study Groups, and the work of the Radiocommunication Bureau and RRB. While *resolves 2* of Resolution 80 (Rev.WRC-07) addresses specific instructions to the Board, the entire Radiocommunication Sector is involved in fulfilling the principles contained in Article 44 of the Constitution and No. 0.3 of the Preamble to the Radio Regulations.

All countries are charged with these principles and all countries benefit when this charge is met by having equitable access to spectrum and orbit resources. The Board strove to abide by these principles in considering the following issues and formulating possible draft recommendations and draft provisions linking the formal notification, coordination and registration procedures with the principles contained in Article 44 of the Constitution and No. 0.3 of the Preamble to the Radio Regulations.

4 Issues and draft recommendations

4.1 Application of No. 13.6 of the Radio Regulations

As stated in the Introduction, Circular letter CR/301 initiated a review of the frequency assignments and networks recorded in the MIFR. Follow-on circular letters were issued to specific administrations regarding frequency assignments and satellite networks in specific frequency bands. This initiative resulted in some networks and frequency assignments being retained, some being suspended, and some being removed from the MIFR. Some of the removals had to be confirmed by the RRB. The RRB also considered a number of appeals where an administration questioned the bringing into use and/or the continuing operation of another administration’s frequency assignments or satellite networks.

There is no Rule of Procedure concerning the application of No. 13.6. Article 13 of the Radio Regulations is titled “Instructions to the Bureau” and No. 13.6 of the Radio Regulations falls under Section II, which has the heading “Maintenance of the Master Register and of World Plans by the Bureau.” No. 13.6 states the following:

13.6 *b)* whenever it appears from reliable information available that a recorded assignment has not been brought into regular operation in accordance with the notified required characteristics as specified in Appendix 4, or is not being used in accordance with those characteristics, the Bureau shall consult the notifying administration and, subject to its agreement or in the event of non-response after the dispatch of two consecutive reminders, each within a three-month period, shall either cancel, or suitably modify, or retain the basic characteristics of the entry. A decision of the Bureau to cancel the entry in the event of non-response shall be confirmed by the Board.

Applying No. 13.6 of the Radio Regulations gave rise to the following considerations by the Board as to the application of this provision:

- The meaning of “reliable information.”
- The meaning of “brought into regular operation.”
- What constitutes a response to an enquiry?
- Suspending the use of a recorded assignment to a space station.
- Number and timing of reminders by the BR.
- Cancellation of a network by the BR and confirmation by the Board.
- Agreement by an administration.

Each consideration is further elaborated below.

4.1.1 The Meaning of “reliable information”

RR No. 13.6 is initiated by the appearance of “reliable information” that a recorded assignment has not been brought into regular operation in accordance with the notified required characteristics as specified in Appendix 4, or is not being used in accordance with those characteristics. The BR periodically receives appeals where one administration questions the bringing into use and/or the continuing operation of another administration’s frequency assignments or satellite networks and requests the cancellation of the assignments or networks in question. Such requests are generally supported by information posted on the websites of launch providers, satellite manufacturers, or satellite operators; data elements from real-time satellite tracking databases open to the public; privately-collected monitoring data; or some combination of public and private data. Sometimes the administration requesting clarification or the administration providing clarification ask that the matter be brought to the attention of the RRB.

The BR also undertook some consultation of publicly available information (e.g., the websites of launch providers, satellite manufacturers, or satellite operators and real-time satellite tracking databases) and compared it to BR databases (e.g., the Space Network System and Space Networks List) to support its own initiatives to remove unused satellite networks and frequency assignments from the MIFR, as first announced in Circular letter CR/301. Following CR/301, individual letters were sent to administrations regarding the 3-7GHz/10-14 GHz bands and then the 17-30 GHz bands concerning satellite network filings which may not correspond to existing operating satellites.

The Board endorsed the actions of the Bureau in consulting the notifying administration based upon this type of information. The Board considered such information to be the best available and “reliable” for the purpose of initiating consultation, but not definitive for the purpose of cancelling, modifying or retaining an entry in the MIFR. Not all information regarding a satellite network is

public and not all information that is public is entirely accurate. The response by the notifying administration to a BR inquiry about the status of its own satellite networks and frequency assignments was taken by the Board to be “reliable” information and the appropriate basis for cancelling, modifying or retaining an entry in the MIFR. Nevertheless, noting that “reliable” in this context does not imply validated or verified, the Bureau may seek clarification regarding such information.

RR No. 13.6 is clear concerning the use of “reliable” information as a mechanism to initiate consultation and the Board sees no need for additional recommendations or provisions in this regard. However, internationally recognized monitoring stations may be useful in confirming operational characteristics at an instant in time or during a finite period of time.

Measurements from internationally recognized monitoring stations could assist the Bureau and the Board in reconciling conflicting information and ultimately lead to the more effective use of the radio frequency spectrum and satellite orbits. See also § 4.2.3 for additional information concerning monitoring, including the financial aspects.

4.1.2 The Meaning of “brought into regular operation”

The BR is responsible for the MIFR (RR No. 13.4) and for maintaining and improving its accuracy (RR No. 11.50). The MIFR contains information about frequency assignments and, in the case of space services, orbit usage. The assignments in the MIFR are associated with a given network and a notifying administration.

The distinction between the parameters recorded in the MIFR and actual satellite operations is an important one, particularly when it comes to the understanding of bringing into use and implementation of Resolution 49 (Rev.WRC-07). The relationship between assignments associated with a given network in the MIFR and the satellite(s) bringing those assignments into use is dynamic. This flexibility leads to efficient use of the radio spectrum and satellite orbits, but complicates the application of the Radio Regulations, which have a less dynamic orientation with regard to bringing into use.

ITU filing parameters encompass the operations of real satellites, but the filings do not represent a particular satellite. Each frequency assignment in a satellite network filing could be brought into use by a different satellite. Conversely, more than one satellite network filing with the same orbital characteristics could be employed to bring into use all the frequencies on a single satellite. The assignments associated with a given network in the MIFR may relate to more than one physical satellite, either at the same time or over the period of validity of the satellite network. The satellite(s) may have arrived at the notified orbital position either directly from launch or after being moved from one location to another.

Appendix 4 data element A.2.a states that “Pending further studies by ITU-R on the applicability of the term “regular operation” to non-geostationary satellite networks, the condition of regular operation shall be limited to geostationary satellite networks.” There is not a clear definition in the Radio Regulations or the Rules of Procedure as to what constitutes the regular operation of the assignments in a satellite network.

While there have been no difficulties on the part of the administration notifying the BR when assignments are brought into use, there have been a number of requests on the part of other administrations and the BR for clarification in this regard. The Board has addressed a number of requests to review BR findings or decisions regarding bringing into use frequency assignments, including cases where frequency assignments have been brought into use for a limited time period of a few days.

The length of time a satellite is present at the registered orbital position, the duration of operation from the registered orbital position, the proportion of frequency assignments used or capable of being used, and other factors are relevant to “regular operation” and must be assessed on a case-by-case basis in those relatively few instances where there is some ambiguity. Repositioning of satellites, transponder failures, changes in customer loading, re-pointing of beams, and various operational factors result in dynamic rather than static conditions making it difficult to establish firm guidelines for being “brought into regular operation” that would apply to all situations.

It is clear that, in order to bring a satellite network into use, a satellite capable of operating in the notified frequency bands must be deployed at the notified orbital location. Specifying a minimum number of days for regular operation could lead to questions as to whether the use must be continuous or periodic within the “x-days,” whether all assignments must be operated during the entire period or just part of the period, etc. Specifying a minimum number of days for regular operation could also result in other difficulties such as moving the satellite after the x-day period and bringing into use another orbital position without suspending use of the recorded assignments at the orbital location being vacated.

Generally speaking, operation of a geostationary satellite network at a registered orbital location for a few months would normally be considered to be “regular operation” in the absence of an anomaly or other relevant factors.

However, at this time, the Board is not in a position to recommend provisions to precisely define “regular operation” and is of the opinion that establishing rigid criteria would result in more rather than fewer difficulties and appeals.

4.1.3 What constitutes a response to an enquiry?

Responding to an inquiry under No. 13.6 is important because the action of the Bureau following a response to cancel, modify, or retain an entry in the MIFR is based on this information and the agreement of the notifying administration that responds. In the case of non-response, the Bureau decides whether to cancel, modify, or retain an entry in the MIFR after the required reminders. The Board must confirm any cancellation based upon non-response.

Fundamentally, a reply to an inquiry must address two questions to be receivable as a response to an inquiry under No. 13.6:

- Has the network been brought into use in accordance with the notified characteristics and, if so, when?
- Has the network been in regular operation since it was brought into use?

A reply to an inquiry by the BR that does not clarify bringing into use and continuity of operation is considered a non-response under No. 13.6. If the responsible administration responds, the Bureau can ascertain whether the network and associated frequency assignments have been in regular operation and met the regulatory deadline for bringing into use. If any assignments are suspended, the Bureau can also determine whether the suspensions are within the two-year window allowed by RR No. 11.49. Nevertheless, the Bureau may request additional or supporting information based on this response.

A reply to an inquiry under No. 13.6 that addresses whether the network was brought into use in accordance with the notified characteristics and continuity of regular operation since bringing into use is considered a response. In other words, confirmation of what is currently required by the Radio Regulations in notifying a satellite network is necessary. The Board recommends modifying No. 13.6 to clarify some of these aspects (see § 4.1.7).

4.1.4 Suspending the use of a recorded assignment to a space station

No. 11.49 of the Radio Regulations allows for the use of a recorded assignment to a space station to be suspended for a finite period of time. The Rule of Procedure for No. 11.49 clarifies the time limits (two years) and states that suspensions may be effected by the administration either at its own initiative or in response to an inquiry made under No. 13.6. Several administrations have suspended assignments as a result of inquiries under No. 13.6.

The Board observed that nearly one-quarter of the recent inquiries made under No. 13.6 resulted in suspensions under No. 11.49. In some cases, operation was actually suspended many months before the inquiry under No. 13.6, but the Bureau was not informed until after the inquiry.

The Board recommends the conference consider strengthening this provision to qualify “as soon as possible” and thereby minimize delays or situations where the suspension is announced and the two year period begins after operation was actually suspended. The time period “six months” is proposed as it allows sufficient time to determine the suspension is not of a temporary nature.

To improve clarity in the formulation of this regulatory provision and provide certainty on the actual date of bringing the assignment back into regular operation, the Board also recommends separating the declaration of suspension from the declaration of resumption in No. 11.49. The following draft provisions are one possible approach to implementing these recommendations:

11.49 ~~Where Whenever~~ the use of a recorded assignment to a space station is suspended ~~for a period not exceeding eighteen months~~, the notifying administration shall, as soon as possible, ~~but no later than six months from the date on which the use was suspended~~, inform the Bureau of the date on which such use was suspended and of the date on which the assignment is planned to be brought back into regular use. The notifying administration shall also inform the Bureau of the date on which the assignment is brought back into regular use. This latter date shall not exceed two years from the date of suspension.

4.1.5 Number and timing of reminders

The end of the first sentence of RR No. 13.6 states that “the Bureau shall consult the notifying administration and, subject to its agreement or in the event of non-response after the dispatch of two consecutive reminders, each within a three-month period, shall either cancel, or suitably modify, or retain the basic characteristics of the entry.” A reminder is only necessary in the case of non-response, which includes the situation where the administration replies but does not respond to the inquiry (see § 4.1.3).

The period during which the two consecutive reminders are dispatched could have more than one interpretation in the English text and there is no timeframe specified by which the administration must respond. The specified period of “three months” likely arose from the transit time associated with sending and receiving correspondence through postal services. Today, with facsimile and E-mail providing almost instantaneous transmission, a period of one month may be considered appropriate and is in line with the 30-day response time for clarifications concerning notices.

The Board recommends modifying No. 13.6 to specify a one-month period between the initial inquiry and the first reminder, a one-month period between the first reminder and the second reminder, and a one-month period after the second reminder by which the notifying administration must respond (see § 4.1.7). This retains the spirit of the three month period currently provided for in RR No. 13.6 and clarifies its application.

4.1.6 Cancellation of a network by BR and confirmation by the Board

The last sentence of RR No. 13.6 states that “A decision of the Bureau to cancel the entry in the event of non-response shall be confirmed by the Board.” There are two ways of understanding this wording:

- that the Bureau’s decision was in force from the time that it was taken by the Bureau and subject to confirmation by the Board, or
- that the Bureau’s decision did not come into force until it was confirmed by the Board.

The practice followed by the Bureau as confirmed by the Board is to implement the decision immediately, subject to later confirmation by the Board. Notwithstanding the fact that the Bureau would have to restore the assignments and inform all affected administrations should the Board not confirm the Bureau’s decision, the primary advantage to this approach is that the cancelled assignments no longer have to be taken into account by the Bureau or other administrations with respect to coordination.

The Board recommends modifying No. 13.6 to specify that the Bureau’s decision to cancel an assignment takes effect immediately, but is subject to confirmation by the Board (see § 4.1.7).

4.1.7 Modification of RR No. 13.6

The following draft provisions are possible approaches to implementing the recommendations to modify RR No. 13.6 and provide the clarifications described above:

13.6 *b)* whenever it appears from reliable information available that a recorded assignment has not been brought into regular operation in accordance with the notified required characteristics as specified in Appendix 4, or is not being used in accordance with those characteristics, the Bureau shall consult the notifying administration and request clarification as to whether the assignment was brought into use in accordance with the notified characteristics and continues to be in regular operation. If the notifying administration does not provide clarification within one month, the Bureau shall issue a reminder. In the event the notifying administration does not respond within one month of the first reminder, the Bureau shall issue a second reminder. s[Subject to its-the agreement or in the event of non-response after the dispatch of two consecutive reminders, each within a three-month period of the notifying administration][Based on the response of the notifying administration], the Bureau shall either cancel, or suitably modify, or retain the basic characteristics of the ~~entry~~ recorded assignment. In the event the notifying administration does not respond within one month of the second reminder, the Bureau shall cancel the assignment. A decision of the Bureau to cancel the ~~entry recorded assignment~~ in the event of non-response shall ~~be confirmed take effect immediately, but is subject to confirmation~~ by the Board.

4.2 Considerations regarding harmful interference

4.2.1 Considerations regarding the status of assignments involved in harmful interference situations and factors affecting the resolution of harmful interference

The Board treats requests for its assistance regarding harmful interference on a regular basis. These requests involve mostly terrestrial services, but increasingly also involve some space services, including some services that are subject to a plan. The Board and the Bureau had no difficulties acting in accordance with the procedures of Article 15 of the Radio Regulations in addressing these cases. Nevertheless, the persistent character of the harmful interference in some situations is a concern and creates a situation that impedes fulfilment of the principles contained in Article 44 of the Constitution and No. 0.3 of the Preamble to the Radio Regulations. In some cases, the

administrations involved have not responded to the Board's recommendations or the Bureau's offers of assistance and appear to take no action to resolve the interference.

Greatly concerned about a particular situation and pursuant to No. 13.15 of the Radio Regulations, the Board instructed the Bureau to carry out a special study of the Rules of Procedure for the Regional Agreements relating to the terrestrial broadcasting service to, *inter alia*, identify options, including an analysis for such options, for dealing with the situation whereby an administration, by virtue of being situated within the planning area, exercises, in accordance with the Rules of Procedure, its rights but does not respect its obligations under the same Regional Agreements. The resultant study is contained in Annex 1 of this report.

Annex 1 describes the current procedures for harmful interference, the categories of recorded assignments, and possible revisions to the Rules of Procedures. These revisions involve reconsidering the concepts of "Party to the Agreement" and "Receivability of notices" for Regional Agreements and including a special clause in the Rules of Procedure on receivability of notices (for Regional Agreements) that would suspend treatment of notices belonging to the administration responsible for the assignment causing harmful interference in non-conformance with the Plan or the provisions of the Regional Agreement until successful elimination of the reported harmful interference.

Ultimately, the Board considered that changing the current Rules of Procedure in this direction would go beyond the present mandate of the Board or Bureau. Suspending the rights of an administration concerning treatment of notices would require the World Radiocommunication Conference to revise the Radio Regulations and the Plenipotentiary Conference to revise the mandates of the Board and Bureau. The Union has successfully relied upon Member States exercising goodwill and mutual assistance since its beginning. Departing from this practice and adopting any type of sanction-based approach to resolving issues such as harmful interference would be a momentous step that would change the face of the Union and the relationship between the Bureau, the Board and administrations. **The Board recommends intensifying efforts to ensure all members exercise the utmost goodwill and mutual respect and adhere to the instruments of the Union.**

4.2.2 Considerations regarding jamming of satellite transmissions

Recently, the Board has addressed requests for assistance to resolve cases of harmful interference severely affecting satellite operations whose assignments have been recorded in the MIFR with favourable findings and therefore, in accordance with RR No. 8.3, have the right to international recognition in order to avoid harmful interference. The interfering signals in these particular cases appear to be of a nature that is forbidden under RR No. 15.1. For example, some interference of this type was reported to consist of a high power CW carrier continuously sweeping the entire satellite transponder bandwidth and timed to coincide with specific broadcasts. Such transmissions can cause loss of service and revenue and possibly damage the satellite.

Harmful interference reports of this type of interference, commonly known as "jamming," have increased. Despite the application of the administrative procedures in the Radio Regulations, the harmful interference sometimes continues and this has given rise to the idea that something more is needed to quickly identify and eliminate the source of interference. Proposals concerning protection of satellite networks in particular and protection of radiocommunication systems/networks in general were deliberated by PP-10. The conference considered this a matter that could be addressed by WRC-12 under what is widely considered a "standing" agenda item for WRCs, agenda item 8.1.3 concerning action in response to Resolution 80 (Rev.WRC-07), which is the matter addressed in this report.

As the leading UN agency for the global management of the radio-frequency spectrum and satellite orbits, it is appropriate that this issue be treated and resolved within the ITU through the diligent application of the Constitution, Convention, and Radio Regulations and the utmost goodwill and mutual assistance. Studies would be needed to determine what additional measures could be incorporated in the Radio Regulations to improve the protection of satellite networks and enable this type of harmful interference to be resolved expeditiously.

4.2.3 Considerations regarding monitoring

Article 16 of the Radio Regulations concerns International Monitoring. Historically, specially designated stations that are recognized as part of the international monitoring system have concentrated on terrestrial services. The ITU publishes the list of recognized international monitoring stations on a periodic basis.

Recently, interest in space monitoring facilities has surged. ITU-R Working Party 1C has produced a draft new report ITU-R SM.[space_radio_monitoring_facilities] on facilities available for the measurement of emissions from both GSO and non-GSO space stations. This report describes seven space monitoring facilities operated by telecommunications regulatory authorities and includes contact information so that these stations may be able to provide assistance in cases involving satellite interference. Some monitoring stations are described as having the capability of geo-locating interferers or jammers through time and frequency difference of arrival techniques. The Bureau recently requested assistance from administrations that were parties to one of these monitoring stations in order to help identify the source of harmful interference to a space network.

The BR does not have the capability to conduct monitoring, which requires substantial resources. It is noteworthy that the space monitoring facilities described above are operated by telecommunications regulatory authorities of Member States of the ITU. In the absence of ITU monitoring facilities, the regulatory authorities of Member States operating recognized international monitoring stations would seem to provide the best alternative.

With more specially designated stations in the international monitoring system, particularly more with satellite monitoring capabilities, there will be more options to locate interference sources and resolve harmful interference. Developing countries would particularly benefit from access to these capabilities. **The Board considers monitoring results obtained by recognized international monitoring stations using measurement techniques and technologies documented in the *ITU-R Handbook on Spectrum Monitoring* to be a valuable resource for addressing harmful interference.**

4.2.4 Modifications of Articles 13 and 15

The possible draft revisions to Articles 13 and 15 that follow could be considered as a first step to accelerate assistance from the Bureau in resolving harmful interference, enable administrations to seek the assistance of the Bureau in identifying a source of harmful interference regardless of frequency band affected, and activate the international monitoring system to help identify the source of the interference (unmodified provisions are shown for context):

13.2 When an administration has difficulty in resolving a case of harmful interference and seeks the assistance of the Bureau, the latter shall, as appropriate, help in identifying the source of the interference and seek the cooperation of the responsible administration and specially designated stations of the international monitoring system to the extent possible in order to resolve the matter, ~~and~~. The Bureau shall prepare a report for consideration by the Board, including draft recommendations to the administrations concerned.

15.41 § 33 1) If it is considered necessary, and particularly if the interfering signals appear to be of a nature that is forbidden under RR No. 15.1 or the steps taken in accordance with the procedures described above have not produced satisfactory results, the administration concerned shall forward details of the case to the Bureau for its information.

15.42 2) In such a case, the administration concerned may also request the Bureau to act in accordance with the provisions of Section I of Article 13; but it shall then supply the Bureau with the full facts of the case, including all the technical and operational details and copies of the correspondence.

15.43 § 34 1) In the case where an administration has difficulty in identifying a source of harmful interference ~~in the HF bands~~ and urgently wishes to seek the assistance of the Bureau, it shall promptly inform the Bureau.

15.44 2) On receipt of this information, the Bureau shall immediately request the cooperation of appropriate administrations [or/and] specially designated stations of the international monitoring system that may be able to help in identifying the source of harmful interference.

15.45 3) The Bureau shall consolidate all reports received in response to requests under No. 15.44 and, using such other information as it has available, shall promptly attempt to identify the source of harmful interference.

15.46 4) The Bureau shall thereafter forward its conclusions and recommendations to the administration reporting the case of harmful interference. These shall also be forwarded to the administration believed to be responsible for the source of harmful interference, together with a request for prompt action.

The Board considers reports of harmful interference submitted under RR No. 13.2 at its regularly scheduled meetings, which occur several months apart. Annex 2 to Decision 5 (Rev. Guadalajara, 2010), which addresses possible measures for reducing expenditures, states the following:

“18) Taking into account No. 145 of the Convention, a full range of electronic working methods needs to be explored to possibly reduce the costs, number and duration of the Radio Regulations Board meetings in the future, e.g. reduction of the number of meetings in one calendar year from four to three.” The Board is a part-time, voluntary body that makes decisions only at its meetings, which ensures transparency through the published minutes. Board Members may prepare outside meetings or conduct working groups; however, **more rapid decisions concerning reports of harmful interference would require additional Board meetings.**

4.3 Difficulties affecting satellite network coordination

As the number of satellites in orbit and the use of certain frequency bands increases, it is becoming more complex and more important to complete satellite network coordination in order to avoid harmful interference. Several administrations brought difficulties regarding satellite network coordination to the Board. Some cases involved an administration seeking assistance in advancing coordination with an administration whose agreement was required but who did not respond to coordination efforts. In some cases, the administration that is second to start the advance publication or coordination procedure is unable to gain the agreement of the administration that first started this process. Administrations may seek the assistance of the Bureau under RR Nos. 9.60-9.65 in the event of no reply, no decision, or disagreement on a request for coordination.

Overcoming any difficulties in achieving coordination requires the good will of the administrations involved and the identification of technical solution(s) to mitigate any predicted interference. The following ROP on RR No. 9.6 contains elements that foster the principle of equitable access to those orbits and frequencies:

b) *the intent of Nos. 9.6 (9.7 to 9.21), 9.27 and Appendix 5 is to identify to which administrations a request for coordination is to be addressed, and not to state an order of priorities for rights to a particular orbital position;*

c) *the coordination process is a two way process. This understanding was included in the Radio Regulations by WARC Orb-88 with the adoption of the former RR provision No. 1085A which was confirmed by WRC-97 in No. S9.53;*

d) *in the application of Article 9 no administration obtains any particular priority as a result of being the first to start either the advance publication phase (Section I of Article 9) or the request for coordination procedure (Section II of Article 9).*

2 *Cases of continuing disagreement or unsuccessful coordination (See No. 9.65) are dealt with in Article 11 where the goal of the procedures, i.e. the international recognition of frequencies, is secured through the recording of frequency assignments in the Master Register (see also Nos. 11.32A, 11.33, 11.41 and 11.41A).*

Likewise, Resolution 2 (Rev.WRC-03), Equitable use, by all countries, with equal rights, of the geostationary-satellite and other orbits and of frequency bands for space radiocommunication services, establishes that registration of frequency assignments for space services does not establish permanent priority and that all practicable measures should be taken to facilitate the use of new space systems.

Other cases considered by the Board involved an administration notifying and bringing into use a satellite network before completing any or very little of the required satellite network coordination. Ideally, coordination would be completed with all affected administrations prior to notification and bringing into use. This is seldom the case today due to congestion in the geostationary orbit in several frequency bands and the fact that administrations must notify at the end of the seven year deadline or face the need to reapply the coordination procedure.

RR No. 11.41 enables notification without completing coordination provided there are at least four months of simultaneous operation without harmful interference, thus enabling administrations to meet the regulatory deadlines. RR No. 11.41 has also been used in cases where no or very few satellite network coordination agreements have been completed at the time of notification. The increased possibility of interference makes notification without coordination undesirable and inhibits the rational, efficient, economical, and equitable use of the spectrum and satellite orbits. Possible means of addressing this problem include the following options:

- Maintain the seven year deadline for notification and require all coordination be complete at the time of notification;
- Extend the seven year deadline for notification by a modest amount (e.g., two years) and require all or most coordination be complete at the time of notification; or
- Maintain the seven year deadline for notification and require the majority of the coordination obligations to be initiated at the time of notification.

Maintaining the seven year deadline for notification and requiring all coordination to be complete at the time of notification would result in suppression of filings for operational satellite networks which had completed most coordination requirements and would be contrary to the rational and efficient use of the spectrum and orbits. In addition, it would be against equitable access because one administration could block the satellite networks notified by another by not agreeing to complete coordination. Extending the seven year deadline for notification by a modest amount (e.g., two years) and requiring all coordination be complete at the time of notification would merely extend the time period without solving this problem.

The Board was of the view that the best approach is to maintain the seven-year deadline for notification. Further progress toward fulfilling coordination obligations might be achieved by requiring the majority of the coordination obligations to be initiated at the time of notification, noting that one obvious difficulty lies in interpreting what it means to ‘initiate’ coordination.

The most basic approach to this method is to apply a simple majority (i.e., coordination initiated with at least half the administrations with which coordination had to be effected as published in the BR IFIC under RR No. 9.38). The following is one possible method for modifying RR No. 11.41 to achieve this goal:

11.41 After a notice is returned under No. **11.38**, should the notifying administration have progressed the coordination process with at least half the administrations required, it may resubmit the notice and insist upon its reconsideration. ~~¶~~ The Bureau shall then enter the assignment provisionally in the Master Register with an indication of those administrations whose assignments were the basis of the unfavourable finding¹⁹. The entry shall be changed from provisional to definitive recording in the Master Register only if the Bureau is informed that the new assignment has been in use, together with the assignment which was the basis for the unfavourable finding, for at least four months without any complaint of harmful interference being made (see Nos. **11.47** and **11.49**).

There was some consideration given to a stronger requirement than “progressing” coordination (e.g., “completing” coordination with half or most administrations required) or to the benefits of requiring coordination to be complete with more of the geostationary satellite networks at farther orbital separations than with networks at close orbital separations, where the technical challenges and potential for interference are greater. Reducing the size of the coordination arc is one means of reducing the coordination requirements.

4.4 Considerations on satellite leasing

In a recent discussion in the RRB, the issue of leasing as it pertains to the use of satellites was highlighted in relation to the application of RR No. 13.6. In particular, the roles of the licensing administration and of the notifying administration responsible for a satellite network filing were raised as factors related to confirming the “regular operation” and status of the frequency assignments of a satellite network recorded in the MIFR where leasing is involved. Today’s satellite operators are engaged in a wide variety of leasing arrangements, from the entire capacity of a satellite for the lifetime of a satellite to a segment of a transponder for a short-term event.

All transmitters must be licensed as indicated in Article 18 of the Radio Regulations. RR No. 18.1 states the following requirement for licensing:

18.1 § 1 1) No transmitting station may be established or operated by a private person or by any enterprise without a licence issued in an appropriate form and in conformity with the provisions of these Regulations by or on behalf of the government of the country to which the station in question is subject (however, see Nos. **18.2**, **18.8** and **18.11**).

¹⁹ **11.41.1** The entry shall be definitive in the case of a frequency assignment to a receiving station, under the condition that the notifying administration has undertaken that no complaint will be made in respect of any harmful interference which may be caused to that assignment by the assignment which was the basis for the unfavourable finding.

There are no provisions in the Radio Regulations that specifically address leasing related to satellites. RR No. **18.11** concerns leasing arrangements, but does so only with regard to aircraft as follows:

18.11 § 6 In the case of hire, lease or interchange of aircraft, the administration having authority over the aircraft operator receiving an aircraft under such an arrangement may, by agreement with the administration of the country in which the aircraft is registered, issue a licence in conformity with that specified in No. **18.6** as a temporary substitute for the original licence.

Further complicating the situation is the fact that, as noted in § 4.1.2 of this report, the various frequency assignments in a satellite network filing could be brought into use by more than one satellite, either at the same time or over the period of validity of the satellite network, and the satellite(s) may have arrived at the notified orbital position either directly from launch or after being moved from another location. When an administration is planning to bring a satellite network into use or to resume operation after a suspension period, satellite capacity may be leased from a third party, adding another complexity to understanding the roles and relationships between the licensing and notifying administrations and operator.

Dealing with this subject of leasing, however, we may easily understand that this subject creates many difficult issues that may be touching on the heart of Radio Regulations, especially in relation to No. 0.3 of the Preamble to the Radio Regulations. However, in the recent situation of the satellite business, satellite leasing is frequently implemented and there are many possible combinations of leasing and owning that may further complicate the regulatory status of these satellite systems.

4.4.1 Leasing of capacity

Satellite capacity is leased for various reasons and time periods. Capacity may be leased to satisfy service requirements where the operator has no ability to launch or operate a satellite network. Capacity may be leased when the operator prefers leasing to owning and operating a satellite network, either for financial or practical reasons. Capacity may be leased when a satellite operator is facing difficulty meeting their launch schedule and consequently their service schedule. Leased capacity may involve “hosted payloads” that may be separately owned, operated, or leased for the satellite lifetime. In any of these cases, satellite(s) may be transferred from other orbital position(s) to fulfil the lease requirements and/or the lessee may have certain agreed responsibilities for the satellite network filing and coordination.

The operational arrangements described above are seen as a practical manoeuvre among operators today. The ITU, however, deals not with operators but with administrations and satellite network filings submitted by administrations. Administrations issue licenses authorizing stations to operate. Extending the concepts in No. 18.11 of the Radio Regulations to situations involving satellite networks would require careful study. No. 18.11 is focused on leased aircraft whereas many leasing arrangements involving satellites are generally for capacity on the satellite network and the lessee does not lease or control the physical space station.

Now a question arises on this type of leasing. There may be a possibility of a situation whereby an operator and its notifying administration, without launching or owning a satellite, seeks to retain its frequency assignments and its status in the MIFR by leasing a satellite or capacity on a satellite from another operator. Such an action clearly demonstrates the importance of status in the MIFR to administrations and operators. Is this kind of leasing justifiable to protect the regulatory status of this satellite system in the MIFR?

The Board is of the view that the leasing of capacity as a means of protecting a satellite network filing fits within the construct of the Radio Regulations provided that the notifying administration(s)

maintains control such that the transmissions are within the notified parameters (e.g., the transmit power of the satellite is maintained so as not to cause harmful interference to other networks).

4.4.2 Leasing of frequency assignments at orbital positions

The Geostationary Satellite Orbit is considered a scarce natural resource that must be shared by all nations. It is a basic understanding that the assignment of a GSO position to bring into use frequencies by a satellite is not permanently given to an administration. Administrations are simply authorized to use the orbital location for the time period that they actually need it. Therefore, the “sale” or “lease” of orbital positions is outside the scope of the Radio Regulations. Thus, there is no terminology or definition describing the “leasing of orbital positions.”

However, when the orbital positions became crowded over a decade ago, sometimes administrations registered orbital locations without concrete plans to launch a physical satellite but simply to reserve positions. These “paper systems” made satellite network coordination very difficult. In extreme situations, “leasing of orbital position” was considered a new business. In some cases, the orbital locations obtained by this action were further transferred to operators wishing to start services from a particular orbital location without beginning the satellite network registration process anew.

In the actual operation of satellite systems, however, transferring the rights of operation to another administration was frequently observed when a satellite operating organization is performing necessary actions such as change of ownership. These necessary actions are considered normal.

Taking into account the various situations, it is now commonly understood among ITU members that the action equivalent to “leasing of orbital positions” is not a recommendable action and inconsistent with the spirit of No. 0.3 of the Preamble to the Radio Regulations.

4.4.3 Complex situations

The two possible leasing arrangements stated above, capacity leasing and orbital position leasing, may be easily understood in theory. But in actual business cases, the situation is often more complicated and difficult. For example, let us consider a case whereby operator 1 leases a satellite from operator 2 and the leased satellite is relocated to a location notified by operator 1’s administration, administration 1. Then operator 1 sub-leases some of the capacity of the satellite to operator 3, who is licensed by administration 3. The role of the notifying administration, in this case, may be interpreted as to simply register a location and no more than that. Is this operation considered a lease of capacity or lease of orbital location? What if a part of capacity is still used by operator 2 but most of the capacity is leased to operator 3?

As we have seen above, a variety of cases can be created and it is extremely difficult to derive one means of meeting the spirit of Preamble No. 0.3 of the Radio Regulations. Leasing involves private business arrangements between parties. Such business arrangements are not directly part of the ITU satellite network notification process. The available body of regulations in our hands includes No. 0.3 and Article 18 of the Radio Regulations along with Articles 11 and 13. The role of leasing in protecting assignments in the MIFR requires further study and may need to be treated in a case-by-case manner.

4.5 Considerations on Resolution 80 from Board Members

Annex 2 contains a contribution by Board Member Mr Moron to the 53rd meeting and Annex 3 contains a contribution by Mr Ebadi to the 57th meeting. The Board regarded the perspectives on the history of and outlook for the use of geostationary orbit and associated radio spectrum as important factors in the debate as to how the principle of equitable access be realized through actions taken under Resolution 80 (Rev.WRC-07).

5 Conclusions

In this report to WRC-12, the Board focused its efforts on new concepts to address issues the Board and the Bureau had faced since WRC-07 affecting fulfilment of the principles contained in Article 44 of the Constitution and No. 0.3 of the Preamble to the Radio Regulations. The use of the radio-frequency spectrum and of the geostationary-satellite and other satellite orbits in a manner consistent with the principles set forth in the Constitution and the Radio Regulations is vitally important for the future of these limited natural resources.

In this report, the Board examined the application of No. 13.6 of the Radio Regulations, the status of assignments involved in certain unresolved harmful interference situations, difficulties experienced in satellite network coordination, and considerations on satellite leasing in some detail. All these topics were related directly and, in some cases, indirectly to items on the Board's agenda in the period between WRC-07 and WRC-12. To the extent possible, the Board provided recommendations and draft revisions to the provisions of the Radio Regulations enhancing the linkage between the notification, coordination, and registration procedures and the basic principles concerning the use of the radio frequency spectrum and satellite orbits.

Specific revisions to Nos. 11.49 and 13.6 of the Radio Regulations to provide, *inter alia*, greater clarity on the number and timing of reminders, suspending the use a recorded assignment to a space station, and the meaning of "brought into regular operation" and the use of "reliable information" are provided. Possible modifications to Articles 13 and 15 follow considerations regarding harmful interference, which includes factors affecting the resolution of such cases and the use of monitoring. Difficulties affecting satellite network coordination are highlighted and a possible revision to No. 11.41 of the Radio Regulations to require progress in the coordination process is suggested as a possible method for overcoming the problem of notification without completing coordination. Considerations on satellite leasing highlights a complex situation touching on Articles 11, 13, and 18 of the Radio Regulations as well as the principles contained in Article 44 of the Constitution and No. 0.3 of the Preamble to the Radio Regulations and private business arrangements. The role of leasing in protecting assignments in the MIFR will require further study. It is hoped that administrations find this work useful in addressing the various issues at WRC-12, particularly those involving satellite networks.

ANNEX 1

Considerations of the status of assignments involved in harmful interference

Source: Annex 6 to Document RRB09-2/4

Introduction

1 At its 48th meeting, greatly concerned about the harmful interference situation of a number of cases in the frequency bands governed by the GE06 Regional Agreement and pursuant to No. 13.15 of the Radio Regulations, the Board instructed the BR to carry out a special study of the Rules of Procedure for the Regional Agreements relating to the terrestrial broadcasting service. This study should, *inter alia*, identify options, including an analysis for such options, for dealing with the situation whereby an administration, by virtue of being situated within the planning area, exercises, in accordance with the Rules of Procedure, its rights but does not respect its obligations under the same Regional Agreements. The Bureau provides hereunder general observations in this respect with particular emphasis on harmful interference situations.

Harmful interference

2 The procedure in a case of harmful interference is set forth in Section VI of Article 15 of the Radio Regulations. Provision No. 15.27 stipulates that full particulars relating to harmful interference shall, whenever possible, be given in the form indicated in Appendix 10. Therefore, when the Bureau receives a report of harmful interference, which requires involvement of the Bureau, the Bureau ascertains the completeness of the information, including that which could serve as a basis for determining the status of the assignments concerned, bearing in mind the indications in Nos. 8.1 to 8.4 of the Radio Regulations.

Categories of recorded assignments

3 According to No. 8.1 of the Radio Regulations, “the international rights and obligations of administrations in respect of their own and other administrations’ frequency assignments shall be derived from the recording of those assignments in the Master International Frequency Register (the MIFR or Master Register) or from their conformity, where appropriate, with a plan. Such rights shall be conditioned by the provisions of these Regulations and those of any relevant frequency allotment or assignment plan.” Article 11 and notification procedures for recording assignments associated with the plan require administrations to notify the assignments for recording in the MIFR when those assignments are to be brought into use. Therefore, the basic requirement for obtaining a certain status in harmful interference situation, for any assignment, consists in its being recorded in the Master Register. If an assignment is not recorded in the MIFR, it has no status from the viewpoint of Article 8 of the Radio Regulations in harmful interference situation. The status is therefore derived from its recording and from the associated findings. In this connection, the following categories of assignments are to be differentiated:

3.1 Frequency assignments which are not subject to any mandatory coordination procedure set forth in the Radio Regulations, or to any worldwide or regional plan established under the ITU auspices: this category of frequency assignments is subject only to the examination under No. 11.31 and therefore, when recorded in the Master Register, they bear a finding only from the view point of their conformity with the Table of Frequency Allocations and the other applicable provisions of the Radio Regulations. If the assignment has a favourable finding under 11.31, it is considered as a conforming assignment and has the right to international recognition, as indicated in No. 8.3 of the Radio Regulations; otherwise it is considered as a non-conforming assignment (see No. 8.4). In the context of the harmful interference cases involving this category of assignments, the following relationship is considered:

- If interference is caused by a non-conforming assignment to a conforming assignment, No. 8.5 applies.
- If interference is caused by a conforming assignment to another conforming assignment, the matter is to be resolved between the administrations concerned on the basis of goodwill and mutual assistance, as stipulated in No. 15.22. The administrations concerned may invoke the issue of the anteriority of the recording of each specific assignment; however, the date of recording is normally not considered as sufficient condition for a priority, given some other formulations in the Radio Regulations, such as the principle of equitable access.

3.2 Frequency assignments which are subject to a mandatory coordination procedure set forth in the Radio Regulations: this category of frequency assignments is subject to additional examinations (provided that the examination under No. 11.31 results in a favourable finding) and therefore, when recorded in the Master Register, they bear a finding from the view point of their conformity with these coordination procedures. In this context, the following situations could arrive:

3.2.1 If the assignment has a favourable finding under No. 11.32, it is considered as having full international recognition (bearing in mind that the administration responsible for this assignment completed successfully the required coordination activities with all other administrations that were likely to be affected). Therefore it has the right to be protected from harmful interference in accordance with the conditions stipulated in the coordination agreements concluded with the concerned administrations. In case of reports of harmful interference involving this assignment and any other assignment from other administrations, their relationship is to be derived from the relative status of the concerned assignments (taking into account their findings under No. 11.32, where applicable) and the conditions set forth in the relevant coordination agreements.

3.2.2 If the assignment has an unfavourable finding under No. 11.32, but a favourable finding under No. 11.32A or 11.33, it is considered as having full international recognition with respect to the administrations with which the coordination has been successfully completed and it has a right to be protected from harmful interference with respect to the frequency assignments from these administrations as stipulated in the coordination agreement concluded between the concerned administrations. With respect to the administrations with which the coordination has not been effected but with respect to which the Bureau formulated favourable findings, the concerned assignment is considered as having an implied recognition; therefore, in case of reports of harmful interference involving this assignment and any assignment from these administrations, the matter is to be resolved on the basis of goodwill and mutual assistance, as stipulated in No. 15.22, bearing also in mind the relative status of the assignment of these other administrations (taking into account their findings under No. 11.32, where applicable).

3.2.3 If the assignment has an unfavourable finding under No. 11.32 and an unfavourable finding under No. 11.32A or 11.33 (recording under No. 11.41), it is considered as being recorded conditionally, i.e., under the condition of not causing harmful interference to the assignments of those administrations with which the coordination has not been effected and with respect to which the Bureau formulated unfavourable findings. This situation is indicated with the inclusion of symbol “H” in column 13B1 (“Finding reference”). In case of reports of harmful interference involving this assignment and any assignment from these administrations, No. 11.42 applies.

3.3 Frequency assignments which are situated in frequency bands subject to a plan shall have a status derived from the application of the procedures associated with the plan: this category of frequency assignments is subject to additional examinations (provided that the examination under No. 11.31 results in a favourable finding) and therefore, when recorded in the Master Register, they

bear a finding from the view point of their conformity with these coordination procedures. In this context, the following situations could arrive:

3.3.1 If the assignment has a favourable finding under No. 11.34, it is considered as having full international recognition (unless there are specific indications in the concerned plan, which may limit the international recognition until a specified date, or grant the international recognition subject to fulfilment of additional conditions). Therefore it has the right to be protected from harmful interference in accordance with the conditions stipulated in the concerned plan (in case of a regional plan such right is limited only to those administrations that are parties to the concerned regional agreement). In case of reports of harmful interference involving this assignment and any other assignment from other administrations that are parties to the concerned agreement, their relationship is to be derived from the relative status of the concerned assignments (taking into account their findings under No. 11.34, where applicable) and the conditions set forth in the relevant plans. In case of reports of harmful interference involving this assignment and any other assignment from other administrations that are not parties to the concerned agreement, the matter is to be resolved between the administrations concerned on the basis of goodwill and mutual assistance, as stipulated in No. 15.22 (the administrations concerned may invoke the issue of the anteriority of the recording of each specific assignment; however, the date of recording is normally not considered as sufficient condition for a priority, given some other formulations in the Radio Regulations, such as the principle of equitable access).

3.3.2 If the assignment has an unfavourable finding under No. 11.34 (recording under Nos. 11.39B, 11.39D or 11.39E, or under the Rule of Procedure relative to No. 11.34), it is considered as being recorded conditionally, i.e., under the condition of not causing harmful interference to the assignments of those administrations with respect to which the Bureau formulated unfavourable findings (these administrations are indicated in the MIFR under “adm” in item 11 (coordination information)). The concerned assignment (recorded with an unfavourable finding under No. 11.34) also bears the symbol “H” in column 13B1 (“Finding reference”). In case of reports of harmful interference involving this assignment and any conforming assignment from these other administrations, the administration responsible for the conditionally recorded assignment is obliged to immediately eliminate the reported harmful interference, if the other assignment is operated in conformity with the concerned plan. However, if the harmful interference is reported from an administration which is not party to the concerned regional plan, then the matter is to be resolved between the administrations concerned on the basis of goodwill and mutual assistance, as stipulated in No. 15.22.

Assignments not recorded in the MIFR

4 The considerations in § 3 above apply only in cases when both assignments (i.e., the one which is experiencing harmful interference and the one which is causing harmful interference) are recorded in the Master Register (it is recalled that the Title of Article 8, which deals with status of assignments, is formulated as “Status of frequency assignments recorded in the Master International Frequency Register”). However, there are situations when either one of the assignments involved in the harmful interference situation, or both of them, are not recorded in the Master Register. In such situations the Bureau applies the following approach:

4.1 If the assignment which is experiencing harmful interference is recorded in the Master Register and the assignment which is causing harmful interference is not recorded in the Master Register, and if the interference situation requires the Bureau’s involvement, the Bureau follows the required procedure, which consists of the following:

- The Bureau acknowledges receipt of the harmful interference report to the administrations which submitted the report. The Bureau also provides information on the status of the assignment experiencing the interference. The Bureau further informs

the submitting administration that the Bureau will contact the administration having jurisdiction over the station which causes harmful interference and will invite it to take the necessary steps to eliminate the interference. The Bureau invites both administrations to cooperate with a view to resolving the case on the basis of goodwill and mutual assistance.

- The Bureau forwards the report of harmful interference to the administration which has jurisdiction over the station which causes harmful interference and invites it to take the necessary steps to eliminate the interference. At the same time the Bureau provides information on the status of the assignment experiencing the interference and of the obligation of administrations to notify any assignment when its use is capable of causing harmful interference to any service of another administration (as stipulated in No. 11.3). The Bureau invites both administrations to cooperate with a view to resolving the case on the basis of goodwill and mutual assistance.

4.2 If the assignment which is experiencing harmful interference is not recorded in the Master Register and the assignment which is causing harmful interference is recorded in the Master Register, and if the interference situation requires the Bureau's involvement, the Bureau follows the required procedure, which consists in the following:

- The Bureau acknowledges receipt of the harmful interference report to the administrations which submitted the report. The Bureau informs the submitting administration that the assignment identified as suffering interference is not recorded in the Master Register and advises the submitting administration to initiate the required notification procedure with a view to its recording in the Master Register, so as to ensure appropriate status for its assignment, as envisaged in Article 8 of the Radio Regulations. The Bureau also provides information on the status of the assignment causing harmful interference. The Bureau further informs the submitting administration that the Bureau will contact the administration having jurisdiction over the station which causes harmful interference and will invite it to take the necessary steps to eliminate the interference. The Bureau invites both administrations to cooperate with a view to resolving the case on the basis of goodwill and mutual assistance.
- The Bureau forwards the report of harmful interference to the administration which has jurisdiction over the station which causes harmful interference and invites it to take the necessary steps to eliminate the interference. The Bureau invites both administrations to cooperate with a view to resolving the case on the basis of goodwill and mutual assistance.

4.3 If both the assignment which is experiencing harmful interference and the assignment which is causing harmful interference are not recorded in the Master Register, and if the interference situation requires the Bureau's involvement, the Bureau follows the required procedure, which consists in the following:

- The Bureau acknowledges receipt of the harmful interference report to the administrations which submitted the report. The Bureau informs the submitting administration that the assignment identified as suffering interference is not recorded in the Master Register and advises the submitting administration to initiate the required notification procedure with a view to its recording in the Master Register, so as to ensure appropriate status for its assignment, as envisaged in Article 8 of the Radio Regulations. If the interference occurs in a band which is subject to a plan, the Bureau also provides information on the status of the assignments in the relevant plan. The Bureau further informs the submitting administration that the Bureau will contact the administration having jurisdiction over the station which causes harmful interference

and will invite it to take the necessary steps to eliminate the interference. The Bureau invites both administrations to cooperate with a view to resolving the case on the basis of goodwill and mutual assistance.

- The Bureau forwards the report of harmful interference to the administration which has jurisdiction over the station which causes harmful interference and invites it to take the necessary steps to eliminate the interference. If the interference occurs in a band which is subject to a plan, the Bureau also provides information on the status of the assignments in the relevant plan. At the same time the Bureau reminds the administration of its obligation to notify any assignment when its use is capable of causing harmful interference to any service of another administration (as stipulated in No. 11.3). The Bureau invites both administrations to cooperate with a view to resolving the case on the basis of goodwill and mutual assistance.

Frequency bands subject to a plan

5 In the frequency bands that are subject to a plan, administrations often consider that the very fact of inclusion of a given frequency assignment in the concerned plan ensures an appropriate protection and do not consider it necessary to notify the bringing into use of the relevant frequency assignment, under the notification procedure set forth in Article 11 of the Radio Regulations, with a view to its recording in the Master Register. In this context, the following considerations should be taken into account:

5.1 The establishment of frequency allotment or frequency assignment plans represents a genuine implementation of the principle of equitable access to the RF spectrum for the Member States which opted for such an approach and decided to become parties to the concerned agreement. The plans provide an agreed framework for an orderly use of the frequencies in the relevant bands by all contracting Member States as the plans guarantee the right of each contracting Member State to start using a given plan entry, in a compatible manner with respect to the other plan entries, at a time when it may need it, in accordance with the level of its social and economical development. The associated plan modification and notification procedures provide for satisfaction of particular operational requirements which are not met by the Plans for the contracting Member State, while preserving the integrity of the Plans themselves.

5.2 The regulatory arrangement which governs the use of the frequency band which is subject to a plan often specifies two basic requirements for the administrations of the contracting Member States:

- a) that these administrations engage themselves not to bring into use frequency assignments that are not in conformity with the concerned plan or with the conditions that specify the implementation of a plan entry;
- b) that these administrations undertake to study and, in common agreement, to put into practice the measures necessary to eliminate any harmful interference that might result from the application of the concerned agreement

5.3 It is to be noted that the considerations in § 5.1 and 5.2 are binding on the administrations of the contracting Member States in their mutual relations, but not on those Member States that are not parties to the agreement. The administrations of the Member States which are not parties to the concerned agreement have no obligation to protect a plan and therefore, in mutual relations between Member States parties to and those not parties to the agreement are governed only by the relevant provisions of the Radio Regulations.

5.4 It is also to be noted that, in the process of the establishment of frequency plans, the planning is often carried out using a simplified methodology (e.g., use of statistical propagation methods instead of detailed terrain data), which is appropriate for large-scale planning, but may not

be accurate enough in some real situations. Consequently, the theoretical compatibility in the plan may result, in some circumstances, in apparent incompatibility in the real operational environment, and if such a situation arrives, then the concerned administrations are expected to study the matter and, in common agreement, to put into practice the measures necessary to ensure compatible operation for the stations of both administrations. For this reason, it follows that the notification of frequency assignments after their bringing into use, and their recording in the Master Register, even for frequency assignments that are included in a plan, is a necessary action, because it provides for an opportunity to validate or otherwise the actual operational situation of the concerned assignments in real conditions (after being considered theoretically compatible in the plan establishment process), in addition to the statutory requirements set forth in No. 11.3. Such recording also represents a means for ensuring international recognition of the concerned frequency assignments with respect to the uses of other administrations which are not parties to the concerned agreement.

5.5 As indicated earlier, the procedures for modification of the plans are intended to preserve the integrity of the planned assignments already included in the plan, but they also provide for the possibility for inclusion of new requirements, which were not envisaged at the time of the establishment of the plan, or which changed in the meantime. In this context, it is to be noted that almost all agreements specify equal status for all frequency assignments that are in accordance with the agreement, irrespective of whether they appear in the original plan or were added to the plan after the completion of the relevant plan modification procedure. In this connection, it is to be noted that some of the plan modification procedure often treats the non-reply of a given administration to the modification proposed by another administration, within a specified period, as implicit agreement. Therefore, some plan entries, notably those that are entered in the plan under the clause of implicit agreement, might be incompatible with the plan entries already included in the plan, thus destroying the integrity of the plan. Given the fact that both assignments have equal status, after entering of the later assignment in the plan, their likely incompatibility, which may be manifested at the time of simultaneous operation, would need to be resolved using the measures mentioned in § 5.2 b) above.

5.6 As indicated earlier (see § 3.3.2 above), the Radio Regulations and some regional agreements provide for the possibility of notifying frequency assignments that are not in conformity with the frequency plan applicable for the band and the area concerned. In such case, the concerned assignment is recorded conditionally, i.e., under the condition of not causing harmful interference to the assignments of those administrations with respect to which the plan modification procedure could not be completed successfully. The course of action which is to be followed in case of reports of harmful interference involving this assignment and any other assignment is explained in § 3.3.2 above.

5.7 There are also cases when an administration brings into operation a frequency assignment, in a band which is subject to a plan, either before completing the required plan-modification procedure or even without initiating the plan modification procedure. In such a case, the administration responsible for the concerned frequency assignment, which is brought into use without being in conformity with the plan, is clearly violating the concerned agreement (see § 5.2 a) above). Therefore, the administration which violates the agreement is expected to eliminate immediately the reported harmful interference.

5.8 In the treatment of harmful interference cases in the bands that are subject to a plan, the Bureau often experiences difficulties in ascertaining the status of the assignment which causes harmful interference. It is to be noted that the administration whose station is experiencing the harmful interference normally indicates the approximate location of the interfering station (sometimes without the indication of the geographical coordinates) and its call sign or other identification. However, the call sign and the identification are not mandatory elements for notification of a broadcasting station (see No. 19.6 in conjunction with No. 19.4 (“should”)) and

very often are not notified. Similarly, the call sign and the identification are not included in any plan. Therefore, the call sign and the identification, if provided, cannot be used as elements for identifying the assignment which causes interference even if it were recorded in the MIFR and/or the concerned plan. On the other hand, various agreements provide for a certain tolerance in placing the actual transmitting station with respect to the position indicated in the concerned plan (up to 15 km in the context of the GE84 and GE89 Agreements, up to 20 km in the context of the GE06 Agreement, up to 25 km in the context of the ST61 Plan); here, as well, there may be uncertainties with respect to establishing the relationship between the assignment brought into use and the assignment which appears in the plan. These uncertainties regarding the relation between the assignment indicated as the interfering one and the corresponding plan entry, if any, have an impact on establishing the appropriate status of the concerned assignment.

Rules of Procedure

6 In the current Rules of Procedure, dealing with Regional Agreements (Parts A2 – A10), the concepts of “Party to the Agreement” and “Receivability of notices” have been widely established.

6.1 This applies in particular to the Rules of Procedure contained in:

- Part A2 (ST61) specifying that Articles 4 and 5 and associated technical criteria are applied to all administrations having territories in the European Broadcasting Area, provided that the station concerned is situated within the planning area;
- Part A4 (RJ81) specifying three groups of countries party or not party to the Agreement;
- Part A5 (GE84) specifying that Articles 4, 5 and 7 and associated technical criteria are applied to all administrations having territories in the planning area with the exception of ISL, provided that the station concerned is situated within the planning area;
- Part A6 (GE89) specifying that Articles 4 and 5 and associated technical criteria are applied to all administrations having territories in the African Broadcasting Area and those neighbouring the African Broadcasting Area, provided that the station concerned is situated within the planning area;
- Parts A8 (GE85-MM-R1) and A9 (GE85-EMA) specifying that Articles 4, 5 and 6 are applied to all administrations having territories in the planning area with the exception of those that declared formally that they did not wish to be considered “parties to the Agreement” as well as non-participating administrations without Plan assignments that had not declared formally that they intended to become “parties to the Agreement”;
- Part A10 (GE06) specifying that Articles 4 and 5 and associated technical criteria are applied to all administrations having territories in the planning area, provided that the station concerned (or the allotment area concerned) is situated within the planning area.

Some Rules have several elements in common, namely on the one hand the provisions that notices are receivable from parties to an Agreement, and on the other hand the application, by the Bureau, of the procedures of Articles 4 and 5 and associated technical criteria to all administrations having territories in the planning area, provided that the station concerned (or the allotment area concerned) is situated within the planning area.

6.2 Bearing in mind the difficulties experienced so far that lead to the decision on a special study, the following approach is offered:

- reconsideration, by the Board, of the concepts of “Party to the Agreement” and “Receivability of notices” for Regional Agreements with a view to aligning them to the extent possible for all Regional Agreements concerned, also bearing in mind that the concept of Rules on receivability of notices (for Regional Agreements) could include

some provisions to cover cases which were not foreseeable at the time of concluding the Agreement;

- to consider the inclusion, where appropriate, of a special clause into the Rules on receivability of notices (for Regional Agreements) for dealing with the situation whereby an administration, considered as Party to the Agreement or by virtue of being situated within the planning area, exercises, in accordance with the Rules of Procedure, its rights but does not respect its obligations under Article 15 of the Radio Regulations with respect to the elimination of reported harmful interference situations thus preventing another administration also Party to the Agreement from operating its assignments/allotments in the Plan in accordance with the provisions of the Agreement (see NOTE 1);
- to place the consideration of draft modifications to the Rules of Procedure on Regional Agreements on the agenda of a forthcoming meeting of the RRB.

NOTE 1 – A possible text illustrating the approach of including a special clause is given below:

“1. If there is a case of harmful interference reported in full compliance with the provisions of Article 15 by a Party to the Agreement in a frequency band subject to the Regional Agreement caused by an emission not in conformity with the Plan or the provisions of the Regional Agreement, and the administration responsible for the assignment causing harmful interference also being Party to this Agreement is not undertaking the necessary steps to eliminate this harmful interference and thus preventing the reporting administration from operating its assignments in the Plan in accordance with the provisions of the Agreement, the Board considers that additional submissions and submissions under treatment from the administration responsible for the assignment causing harmful interference shall be kept in abeyance and be processed only after the successful elimination of the reported harmful interference case.

2. The original date of receipt of the complete notice shall be kept unchanged.”

ANNEX 2

Resolution 80 considerations by Mr Moron, RRB Member 2002-2010

Source: RRB10-1/4

Although Resolution 80 does not say it *expressis verbis*, the main problem to which it refers is the use of geostationary orbit and associated radio spectrum. In the initial period of this orbit exploitation, and with the principle of first-come-first-served in force, it began to be extensively used by few developed countries having suitable technology at hand. That may be considered a natural process of development but the world evolves, situation changes, and a number of other countries now want to join the “club”. So the problem arose as to how in practice could the principle of equitable right to use and equitable access¹ be realized. In answer to this new situation, WRC-97, under the pressure of those other countries, adopted Resolution 80 (see Annex 1 in [1]) which was maintained and revised by WRC-2000 and WRC-07. These moves, however, did not mean that any real progress in resolving the problem was made. RRB was requested to propose solutions, but such a task for the RRB alone constitutes, in my view, mission impossible.

The ITU, as other international organizations, can work effectively only when good will towards cooperation exists and spirit of compromise among its members prevails. This may take place only when all of players see in this approach the only sensible way ahead. But in this case unfortunately, it looks like that up to the present time the above condition has not been fulfilled. Those occupying the geostationary orbit simply have not been responsive (one should remember that big economic and strategic interests are at stake, and people are reluctant to resign from profits and privileged position, if the situation does not force them to make concessions). So it is not a surprise that the Circular letters CR/88 [1] and CR/101 [2] from 1998 remained without any serious responses, and no real progress was made at WRC-2000 [3], WRC-2003 [4, 5, 6] and WRC-2007 [7, point 5.7].

Only recently, when it became evident that the situation in the geo-stationary orbit is becoming critical and the pressure from “other countries” is steadily mounting [8, 9], it became possible to expect some change. In response to this, the BR, at the request of the RRB, distributed in April 2009 Circular letter CR/300 [10] through which RRB once more asked for contributions from Administrations which would help the Board in its studies. The BR also distributed Circular letter CR/301 [11] in which Bureau urges administrations to remove unused assignments and networks from the MIFR.

But most important is another action which the BR started, and for which it should be appreciated very much. They initiated exchange of views and open discussion of this delicate problem which began in the session organized by them at the International Wroclaw Symposium on EMC in Poland, in June 2008 [12]. It was continued at the BR Workshop in Geneva, in May 2009 [13, 14], and which hopefully will continue in 2010. Additionally, ITU-R Study Groups began serious consideration of possible technical and regulatory solutions [15].

¹ See: ITU Constitution (Nos. 78 and 196); Radio Regulations: Preamble (Nos. 0.3 and 0.6), Art. 12 (No. 12.2), Appendix 30B (Art.1, No. 1.1; Art.11, No. 11.1), Resolution 2 (*considering*), Resolution 4 (*considering a*), Resolution 136 (*considering e*).

One may hope that having such a combined “think tank” and effort behind them, the RRB will be able to present meaningful preliminary proposals, but a workable solution would be possible only with the cooperative and responsive stance of administrations.

The problem is very difficult and delicate, and it should be repeated: big economic and strategic interests are at stake, and people are reluctant to resign from profits and privileged position, if the situation does not force them to make concessions. Those occupying the geostationary orbit are simply not responsive yet.

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ANNEX 3

The filing of more realistic satellite network parameters and steerable beam considerations by Dr Ebadi, RRB Member 2006 – present

The filing of more realistic satellite network parameters

Some satellite networks in the coordination or notification stage, or those already recorded into the MIFR, have parameters with unrealistic values and excessive margins between the maximum and minimum values. It is difficult for administrations to complete the coordination procedures when satellite networks with such characteristics are involved. Due to the inability to complete coordination, most administrations would request for application of No. 11.32A which usually results in unfavourable findings. These administrations would subsequently request for the application of No. 11.41 to have their assignments recorded into the MIFR.

One approach to address this issue is to limit the satellite parameters in filings to a more realistic range of values, which could be determined by the relevant ITU-R Study Groups. By eliminating unrealistic values in satellite filings, this not only facilitates the coordination of satellite networks, but also allows accurate interference assessments from being made under No. 11.32A. Consequently this reduces the occurrence of recording under No. 11.41.

Steerable beams

The majority of satellite networks recorded in the MIFR have steerable beams whereby the beam could be steered over the entire visible earth and the service area is either global or limited to the territory of one or a few administrations. In actual operations, it is very difficult for a satellite to have a beam with such global steering flexibility, due to the complex satellite techniques and designs requirements. Furthermore, the service areas of most operational satellites may not be global as indicated in the filings. Steerable beams also hinder the coordination of satellite networks particularly in cases of close orbital separations. It should be noted that this issue is also discussed under WRC-12 Agenda item 7, Issue 1D. The proposed solution was to modify item B.3.b.1 in Annex 2 of Appendix 4 to the RR as indicated:

B.3.b.1 the co-polar antenna gain contours [which shall be minimized as much as possible to cover the service area with due account of technical restrictions in certain cases](#), plotted on a map of the Earth's surface, preferably in a radial projection from the satellite onto a plane perpendicular to the axis from the centre of the Earth to the satellite

However, the above method needs further elaborations and improvements, so that steerable beams with global service areas could be prevented from being filed, and to ensure that the beam could only be steered within the field service area (which is not global).

Another option would be to include provisions in the RR similar to No. 11.49, whereby the service area not covered by the steerable beam is suspended. Should the steerable beam not be repositioned to the suppressed service area within a stipulated period, this service area and its associated parameters would be suppressed.